REMARKS

Claims 1-26 are currently pending. Claims 14, 18 and 20-26 have been withdrawn pursuant to a Restriction Requirement. Claims 1-13, 15-17 and 19 have been examined on their merits.

Claims 1-13, 15-17 and 19 have been rejected under 35 U.S.C. 103(a) over U.S. Patent No. 4,704,130 ("Gilding") in view of U.S. Patent No. 4,770,664 ("Gogolewski"). Specifically, the Examiner alleged that Gilding teaches a process of making a biocompatible porous prosthesis, except for the use of a porous support for which the Examiner cites Gogolewski. Office Action, p. 3. Applicants respectfully traverse, and submit that all of the examined claims are patentable over Gilding in view of Gogolewski.

As an initial matter, in order to establish a *prima facie* case obviousness, all of the elements recited in the claims must be taught in the cited art. MPEP 2143. Here, the combination of Gilding and Gogolewski fail to teach all of the elements of Applicants' claims.

1. Gilding Does Not Teach Applicants' Porous Support Or Copolymer

As cited by the Examiner, col. 4, lines 27-45 of Gilding teaches a method of forming a microporous elastomeric membrane by precipitation of polyurethane solution onto a solid substrate (*i.e.*, a nonporous solid support). Thus, as the Examiner admits, Gilding fails to teach the use of a porous support structure. Office Action, p. 3.

However, Gilding also fails to teach the use of Applicants' claimed "biocompatible block copolymer including one or more elastomeric blocks and one or more thermoplastic blocks." On the contrary, Gilding only teaches the use of elastomers. Col. 2, lines 28-30 ("In contrast, applicants' invention is concerned with the biocompatibility of an elastomeric material..."). Indeed, the word "thermoplastic" is no where to be found in the Gilding patent.

Although not stated explicitly, the Examiner appeared to rely on col. 5, lines 52-56, which specifically refers to the use of "the segmented polyether urethane urea family of polymers, or 'spandex polymer' whose chains consists of alternating hard and soft blocks," as possible teaching Applicants' recited elastomer/thermoplastic block copolymer. This reliance is misplaced. Gilding's "segmented polyether urethane urea family of polymers" are elastomers, not block copolymers of elastomers and thermoplastics. Gilding's "spandex polymers" are also all elastomers (*e.g.*, copolymers of hard block polyurethane and soft block polyethylene glycol etc.), and not block copolymers of elastomers and thermoplastics. *See* Exhibit A – definition of spandex and polyethylene glycol.

As such, Gilding fails to teach both the use of a porous support structure as well as Applicants' claimed elastomer/thermoplastic block copolymers.

2. Gogolewski Does Not Teach Applicants' Porous Support Or Copolymer

Contrary to the Examiner's assertion, Gogolewski does not teach the use of a porous support structure. In fact, the cited section col. 2, lines 51-60 (Office Action, p. 3) says nothing about the use of a porous support structure. Like Gilding, Gogolewski teaches the precipitation of polyurethane or copolyurethane (all elastomers) onto a solid substrate. *Id.* The resulting multilayered prothesis material, like Gilding, is porous due to the precipitation process. However, the support structure itself is solid, not porous. Col. 4, lines 42-45.

Thus, like Gilding, Gogolewski also fails to teach either the use of a porous support structure or Applicants' claimed elastomer/thermoplastic block copolymers.

3. The Combination Of Gilding And Gogolewski
Fails To Teach Applicants' Porous Support And Copolymer

Thus, both Gilding and Gogolewski fail to teach the use of Applicants' recited porous support structure and elastomer/thermoplastic block copolymer. As such, withdrawal of this rejection is respectfully requested.

4. Neither Gilding Nor Gogolewski Teach
The Specific Limitations Of Claims 4, 5, 13, 15-17 and 19

In addition to the deficiencies set forth above, the combination of Gilding and Gogolewski also fail to teach the specific limitations of claims 4, 5, 13, 15-17 and 19.

For example, neither Gilding nor Gogolewski teach the specific "biocompatible block copolymer comprising isobutylene and styrene or α-methylstyrene" limitation as recited in claims 13 and 19 (*see also* claim 5). By the same token, neither Gilding nor Gogolewski teach the specific triblock copolymer of claim 4.

Furthermore, neither Gilding nor Gogolewski teach the specific mixture of first and second solvent in which "said second solvent having a boiling point higher than that of said first solvent and being present in an amount less than that which cause said copolymer to precipitate out of said first solvent" or "said second solvent having a boiling point higher than that of said first solvent and being present in an amount not exceeding 95% of that which cause said copolymer to precipitate out of said first solvent" as recited in claims 15-17 and 19. In those same claims, neither Gilding nor Gogolewski teach further to specifically volatize the first solvent from this specific mixture as recited in step (b) of claims 15-17 and step (c) of claim 19.

Moreover, neither Gilding nor Gogolewski the specific 7-15% copolymer limitation of claim 13. In fact, Gogolewski completely teaches away from this limitation, specifically stating

that less than 5% polymer solution is necessary to practice his invention (col. 1, lines 62-67; claims 1, 2, 11).

Thus, for these additional reasons, withdrawal of this rejection is respectfully requested.

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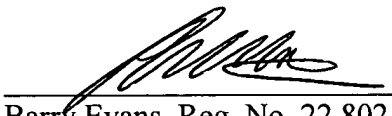
In view of the remarks and comments herein, all of pending claims 1-13, 15-17, and 19 in the present application is believed to be in condition for an allowance, early notice of which is earnestly sought. If there are any reasons why such a Notice would not issue, the Examiner is respectfully requested to contact the Applicants' undersigned counsel for an interview.

No extra fee is believed due. However, if any additional fees are necessary, the Director is hereby authorized to charge such fees to Deposit Account No. 50-0540.

Dated: February 1, 2006

Respectfully submitted,



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spandex

Dictionary

The American Heritage® dic·tion·ar·ies

span·dex (spăn'dĕks)

n.

A synthetic fiber or fabric made from a polymer containing polyurethane, used in the manufacture of elastic clothing.

adj.

Of or relating to spandex or its elastic qualities.

[Alteration of EXPAND.]

WordNet

Note: click on a word meaning below to see its connections and related words.

The *noun* spandex has one meaning:

Meaning #1: an elastic synthetic fabric

Wikipedia

spandex

Spandex or **elastane** is a synthetic fiber known for its exceptional elasticity (stretchability). It is stronger and more durable than rubber, its major plant competitor. It was invented in 1959 by DuPont, and when first introduced it revolutionized many areas of the clothing industry.

Spandex is the preferred name in North America and Australia, while elastane is most often used elsewhere. It turns out that "spandex" was coined from an anagram of "expands." A well-known trademark for spandex or elastane is INVISTA's brand name **Lycra**; another trademark (also INVISTA's) is **Elaspan**, **Dorlastan** (Bayer), **Linel** (Fillattice).

Spandex fiber characteristics

Spun from a block copolymer, these fibers exploit the high crystallinity and hardness of polyurethane segments, yet remain "rubbery" due to alternating segments of polyethylene glycol[1]. This yields the following combination of materials properties:

- can be stretched over 500% without breaking
- able to be stretched repetitively and still recover original length
- lightweight
- abrasion resistant
- poor strength, but stronger and more durable than rubber
- soft, smooth, and supple
- resistant to body oils, perspiration, lotions, and detergents
- no static or pilling problems

Major spandex fiber uses

- Apparel and clothing articles where stretch is desired, generally for comfort and fit, such as:
  - athletic, aerobic, and exercise apparel
  - wetsuits
  - swimsuits/bathing suits
  - competitive swimwear
  - brassiere straps and bra side panels
  - ski pants
  - slacks
  - hosiery
  - leggings
  - socks
  - belts
- Compression garments such as:
  - surgical hose
  - support hose
  - bicycle pants
  - foundation garments
- Shaped garments such as bra cups

Production

The U.S. Federal Trade Commission definition for spandex fiber is "A manufactured fiber in which the fiber-forming substance is a long chain synthetic polymer comprised of at least 85 percent of a segmented polyurethane".

First U.S. commercial spandex fiber production: 1959, DuPont Company

Current U.S. spandex fiber producers: INVISTA; Bayer Corporation; RadiciSpandex Corporation

Fiction

In comic books, superheroes and superheroines commonly wear costumes made of spandex.

See also

- Textile
- Spandex fetishism
- Darlex

External links

- Elaspan® spandex - Company website
- Lycra® spandex - Company website
- RadiciSpandex - Company website

Mentioned In

spandex is mentioned in the following topics:

Spandex Slacks	Running Spandex
Cobblestone Spandex	Hanes Nylon Spandex Panties
Jockey Spandex Shirt	Wide Spandex Shoes
Acetate/spandex Clothing	Acetate/spandex Dress
Lycra (trademark)	catsuit
	More>

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polyethylene glycol

Dictionary

The American Heritage® dic·tion·ar·ies

polyethylene glycol
n.

Any of a family of colorless liquids with high molecular weight that are soluble in water and in many organic solvents and are used in detergents and as emulsifiers and plasticizers.

Medical

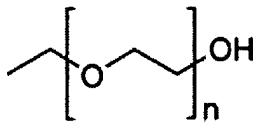
HOUGHTON MIFFLIN COMPANY

pol·y·eth·yl·ene glycol (pŏl'ē-ĕth'ə-lēn')
n.

Any of a family of high molecular weight compounds that can be liquid or waxlike in consistency, are soluble in water and in many organic solvents, and are used in detergents and as emulsifiers and plasticizers.

Wikipedia

polyethylene glycol



Chemical structure of the polymeric polyethylene glycol

Polyethylene glycol (PEG) and **polyethylene oxide** (PEO) are polymers having an identical structure except for chain length and end groups, and are the most commercially important polyethers. Polyethylene glycol refers to an oligomer or polymer with low molecular weight while polyethylene oxide is used for higher molecular weights. PEG generally is a liquid while PEO is a low-melting solid. Both are prepared by polymerization of ethylene oxide. While they find use in different applications and have different physical properties (i.e. viscosity) due to chain length effects, their chemical properties are nearly identical.

Polyethylene glycol has the following structure:

$$HO\text{-}(CH_2\text{-}CH_2\text{-}O)_n\text{-}H$$

Pegylation is the act of adding a PEG structure to another larger molecule, for example, a protein (which is then referred to as **pegylated**).

PEG is soluble in water, methanol, benzene, dichloromethane and is insoluble in diethyl ether and hexane. It is coupled to hydrophobic molecules to produce non-ionic surfactants.

Uses

Polyethylene glycol is non-toxic and is used in a variety of products. It is the basis of a number of laxatives (e.g. macrogol-containing products such as Movicol® and polyethylene glycol 3350, or MiraLax®). It is the basis of many skin creams, as *cetomacrogol*, and sexual lubricants, frequently combined with glycerin.

Polyethylene glycol with added electrolytes is used for bowel preparation and drug overdoses. It is sold under the brandnames **GoLYTELY** and **Colyte**.

When attached to various protein medications, PEG allows a slow release of the carried protein. This makes for a longer acting medicinal effect and/or reduces toxicity, and allows longer dosing intervals. Examples include PEG-interferon alpha (used to treat hepatitis C) and PEG-filgrastim (Neulasta®).

It has been shown that PEG can improve healing of spinal injuries in dogs [1].

PEG is also used in liquid body armor [2] and tattoos to monitor diabetes[3]. Functional groups of PEG give polyurethane elastomers their "rubberiness", for applications such as foams (foam rubber) and fibers (spandex). Its backbone structure is analogous to that of silicone, another elastomer.

Since PEG is a flexible polymer, it can be used to create very high osmotic pressures (tens of atmospheres). It also is unlikely to have specific interactions with biological chemicals. These properties make PEG one of the most useful molecules for applying osmotic pressure in biochemistry experiments, particularly when using the osmotic stress technique. [4]

PEO can serve as the separator and electrolyte solvent in lithium polymer cells. Its low diffusivity often requires high temperatures of operation, but its high viscosity even near its melting point allows very thin electrolyte layers. While crystallization of the polymer can degrade performance, many of the salts used to carry charge can also serve as a kinetic barrier to the formation of crystals. Such batteries carry greater energy for their weight than other lithium ion battery technologies.

External links

- GoLYTELY - drugs.com
- About GoLYELY - nulytely.com

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Mentioned In

polyethylene glycol is mentioned in the following topics:

peg	maleimide
macroprolactin	osmotic stress technique
Sphingopyxis	brake fluid
PEG	Altovis
polyols	antistatic agent
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